

**DEPARTMENT OF TRANSPORTATION****DIVISION OF ENGINEERING SERVICES**

Office of Structural Materials

Quality Assurance and Source Inspection



Bay Area Branch

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Contract #: 04-0120F4Cty: SF/ALA Rte: 80 PM: 13.2/13.9File #: 1.28**WELDING INSPECTION REPORT****Resident Engineer:**Siegenthaler, Peter**Address:** 333 Burma Road**City:** Oakland, CA 94607**Report No:** WIR-024874**Date Inspected:** 28-Jun-2011**Project Name:** SAS Superstructure**OSM Arrival Time:** 700**Prime Contractor:** American Bridge/Fluor Enterprises, a JV**OSM Departure Time:** 1530**Contractor:** American Bridge/Fluor Enterprises, a JV**Location:** Job Site**CWI Name:** Steve Jensen**CWI Present:** Yes No**Inspected CWI report:** Yes No N/A**Rod Oven in Use:** Yes No N/A**Electrode to specification:** Yes No N/A**Weld Procedures Followed:** Yes No N/A**Qualified Welders:** Yes No N/A**Verified Joint Fit-up:** Yes No N/A**Approved Drawings:** Yes No N/A**Approved WPS:** Yes No N/A**Delayed / Cancelled:** Yes No N/A**Bridge No:** 34-0006**Component:** Tower**Summary of Items Observed:**

This Quality Assurance (QA) Inspector, Craig Hager was on site at the job site between the times noted above.

This QA Inspector was on site to randomly observe Quality Control (QC) personnel perform Non-Destructive Testing (NDT) and monitor American Bridge/Fluor (ABF) welding operations. This Quality Assurance (QA) Inspector, Craig Hager observed the following.

114 Meter elevation – East Tower – Splice Plates

This QA Inspector observed ABF welding personnel Salvador Sandoval (#2202) and Xiao Jian Wan (#9677) in the process of moving the various welding and preheating equipment from the North Tower to the East Tower to begin production welding. Note that the weather conditions this morning is light to heavy rain at times.

This QA Inspector observed the following: in the East corner both splice plates (#165-East and #166-East) had been tack welded and an induction heat blanket had been positioned over the bottom half of weld #166-East to preheat prior to welding, in the Southeast corner the bottom splice plate (#166-Southeast) had been tack welded, but tack welding of the top splice plate (#165-Southeast) was not complete.

This QA Inspector observed ABF welding personnel Xiao Jian Wan (#9677) using a hand held gas torch to preheat several small areas on the top splice plate (#165-Southeast) prior to completing the tack welding at each location. This QA Inspector randomly observed as QC Inspector Steve Jensen verified the preheat temperature prior to tack welding with an electric temperature gauge and verify the following Flux Cored Arc Welding (FCAW) parameters; 270 amperes and 21.3 volts at a travel speed of 100 mm per minute to produce a heat input

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## WELDING INSPECTION REPORT

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of 3.45 KJ per mm. The welding observed by this QA Inspector appeared to comply with Welding Procedure Specification (WPS) ABF-WPS-D15-F2200-3.

This QA Inspector observed ABF welding personnel Salvador Sandoval (#2202) using a hand held gas torch to complete the preheating process on the bottom half of weld #166-East prior to the start of production welding using the FCAW process. This QA Inspector randomly observed QC Inspector Steve Jensen use an electronic temperature gauge to verify the preheat temperature prior to welding and verify the following FCAW parameter; 273 amperes and 20.3 volts at a travel speed of 100 mm per minute to produce a heat input value of 3.34 KJ per mm. The welding observed appeared to comply with ABF-WPS-D15-F2200-3.

This QA Inspector observed QC Inspector Steve Jensen check the preheat temperature of the material after the first production weld pass. QC Inspector Steve Jensen informed ABF welding personnel Salvador Sandoval (#2202) the area where welding had started had cooled to a temperature below the minimum preheat (300°F). This QA Inspector observed that tack welding on the top plate in the Southeast corner by ABF welding personnel Xiao Jian Wan (#9677) had been completed. This QA Inspector observed that moisture had accumulated on the surface of the material in the Southeast corner below the tower splice and informed QC Inspector Steve Jensen of the observation. This QA Inspector observed ABF welding personnel Xiao Jian Wan (#9677) use a gas torch to preheat a small area on the bottom splice plate in the Southeast corner in a effort to remove the moisture, see photo below.

This QA Inspector was informed by QC Inspector Steve Jensen at approximately 1145 hours this date that he had been informed by ABF welding Foreman Erick Sparks that welding at this location was canceled due to the moisture and preheating conditions due to the heavy rains.

114 Meter elevation – North Tower – Splice Plates

Welding had been completed and splice plate welds #165-North, #166-North, #165-Northeast and #166-Northeast had been visually inspected and accepted the previous afternoon, the 24 hour waiting period prior to Magnetic Particle Testing expired today at approximately 1130 hours. QC Inspector Tony Sherwood informed this QA Inspector at approximately 1300 hours this date the welds at this location were wet due to the rain and that the MT inspection had been canceled until tomorrow morning.

This QA Inspector updated the Master Bolt Log for the 04-0120F4 project with the latest test results and samples. This QA Inspector emailed an electronic record of this log to the applicable personnel.

### Summary of Conversations:

This QA Inspector had general conversations with American Bridge/Fluor (ABF) and Caltrans personnel during this shift. Except as described above and noted below there were no notable conversations.

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QA Reviewer